Molecular diagnostics of gastrointestinal infections

Product portfolio

r-biopharm®

Comprehensive:
GI diagnostics for all relevant pathogens

Individual:
The suitable solution for every testing strategy

Efficient:
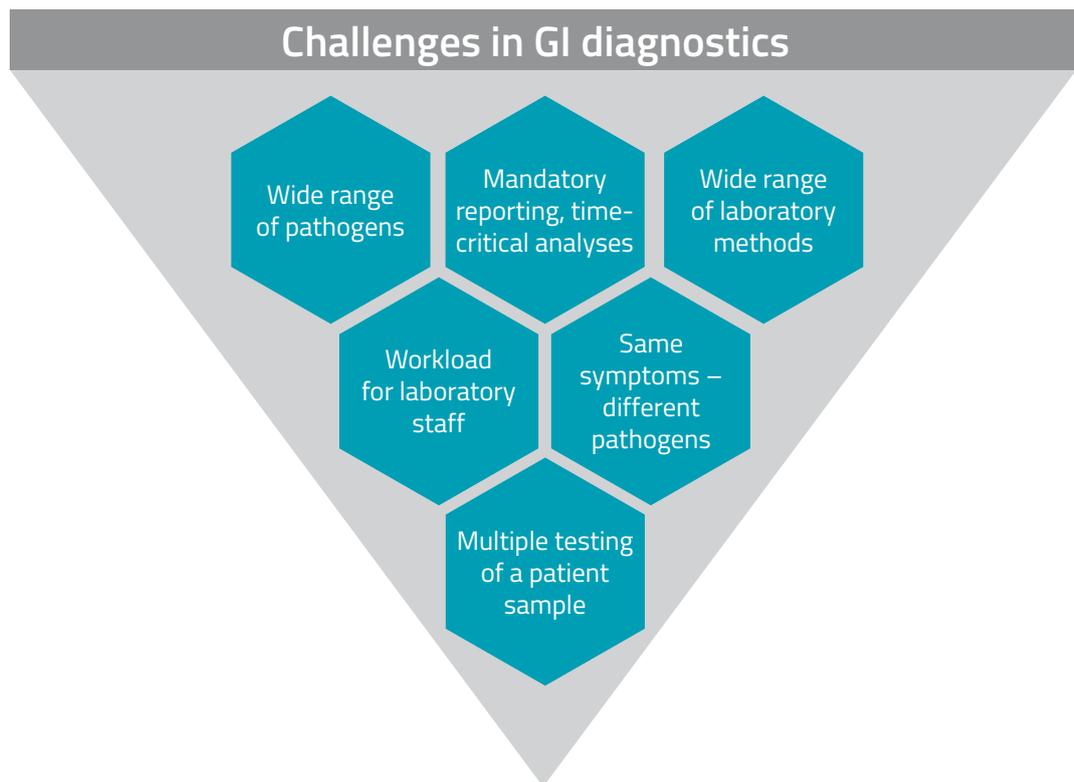Harmonized processing for virus, bacteria and parasite detection

More information:

https://r-b.io/gastroen

Focus on GI diagnostics:
Solve complex requirements efficiently

Gastrointestinal infections pose a significant global health threat. GI infections are the fourth leading cause of death worldwide in children under 5 years of age. The diagnosis of gastrointestinal infections poses a variety of challenges for laboratories, particularly in terms of time and resource efficiency.

Challenges in GI diagnostics

- Wide range of pathogens
- Mandatory reporting, time-critical analyses
- Wide range of laboratory methods
- Workload for laboratory staff
- Same symptoms – different pathogens
- Multiple testing of a patient sample

Workflow optimization using PCR

Save time:
Results within hours instead of days enable quick and appropriate treatment decisions and support the fight against antibiotic resistance.

Broad pathogen coverage:
A test can cover a wide range of possible pathogens.
a) Small multiplex assays: These assays test for a limited number of pathogens and are ideal for specific clinical questions.
b) High-multiplex assays: These assays can test for 20 or more pathogens simultaneously, which is particularly useful in unclear clinical situations where multiple pathogens must be considered.

Reduced workload:
Fewer manual steps and handling errors.

Precise diagnoses:
Higher sensitivity and specificity compared to traditional methods.

Harmonized processing:
Test requirements for bacteria, viruses, and parasites with a single workflow.
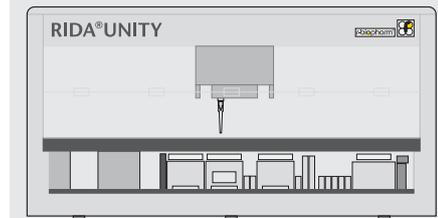
What are your laboratory's requirements?

r-biopharm®

Fully automated processing and flexible combination of assays

RIDA®UNITY

From extraction to sample analysis – all in one place

- Option of a syndromic approach with up to 6 assays
- Sample processing tailored to requirements
- 1-click evaluation of results
- Medium to high sample throughput
- IVDR certified system

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High-multiplex approach for comprehensive pathogen coverage

RIDA®Xplore & RIDA®Jump

Detection using Multiplex Tandem PCR

- Efficient processing through parallel detection of viruses, bacteria, parasites; up to 20 pathogens in one run
- Semi-automated processing
- Can be combined with existing laboratory equipment
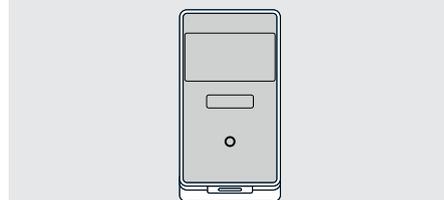- Medium to high sample throughput

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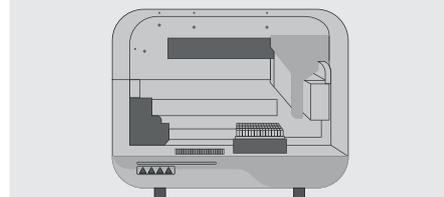
Flexible processing of individual samples

Vivalytic

BOSCH
Technik fürs Leben
Vivalytic

Fully automated Point-of-Care system

- Cartridge: ready-to-use
- Easy handling
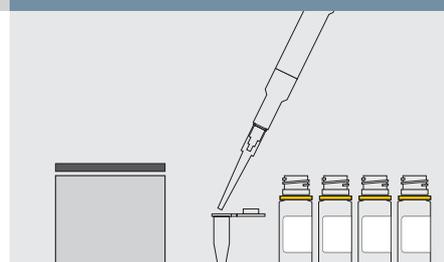- Connection to LIS possible
- Cross-indication portfolio

Different sample requirements in low to medium throughput

RIDA®GENE

Direct detection using real-time PCR

- Efficient combination of all RIDA®GENE assays regardless of RNA or DNA detection
- Possibility of syndromic testing
- 20 thaw/freeze cycles
- Manual processing with existing laboratory equipment

RIDA®UNITY

RIDA®UNITY assays are based on real-time PCR technology and are optimized for fully automated processing on the RIDA®UNITY system.

This system solution offers the possibility of processing 96 extractions and 192 reactions per run. Depending on the sample volume, two to three runs or up to 384 reactions can be processed in one working day (8 hours).

Convincing due to

Flexibility
- Up to six different assays can be combined in one run
- Samples can be processed according to specific requirements
- Modular processing
- Integration of external cyclers (BioRad)

Efficiency
- Fully automated
- Reuse of reagents and eluates
- Matrix-independent extraction

Safety
- Complete traceability
- Controlled loading
- Complete process controls
- IVDR certified system

Speed
- Intuitive software handling
- Automatic evaluation software
- Ready-to-use reagents
- Time to result: 2.5 - 4.5 hours

Simple, fully automated workflow

Extraction & PCR setup > Real-time PCR > Automated evaluation

192 reactions	Extraction	PCR setup	PCR		04:22 h
384 reactions		Extraction	PCR setup	PCR	07:35 h
576 reactions			Extraction	PCR setup	PCR	10:43 h

0 h   2 h   4 h   6 h   8 h   10 h   12 h

■ = Hands-on   ■ = last hands-on in the workflow
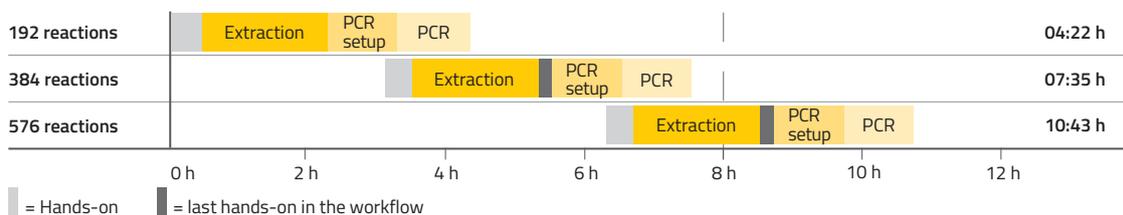
Products	Description	Art. No.
Viruses		
RIDA®UNITY Norovirus I & II	Norovirus GI Norovirus GII	UN1415
RIDA®UNITY Viral Stool Panel II	Rotavirus Adenovirus Astrovirus	UN1325
RIDA®UNITY Viral Stool Panel IV*	Norovirus Enterovirus Sapovirus	UN1345
RIDA®UNITY Hospital Stool Panel*	Norovirus Rotavirus *C. difficile*	UN0705
Bacteria		
RIDA®UNITY C. difficile**	*C. difficile* *C. difficile* toxin A/B	UN0835
RIDA®UNITY Bacterial Stool Panel	*Campylobacter* spp. *Salmonella* spp. *Yersinia enterocolitica*	UN2405
RIDA®UNITY EHEC/EPEC	EHEC EPEC STEC EIEC/*Shigella* spp.	UN2205
RIDA®UNITY E. coli Stool Panel I*	Shiga toxin 1 Shiga toxin 2 EPEC	UN2285
RIDA®UNITY E. coli Stool Panel III*	ETEC EIEC/*Shigella* spp. EAEC	UN2265
Parasites		
RIDA®UNITY Parasitic Stool Panel II	*Cryptosporidium* spp. *Entamoeba histolytica* *Giardia lamblia*	UN1725

*   Coming soon
** Fully automated processing on the RIDA®UNITY, as well as manual
   processing with MagNAPure96 + LightCycler®480 II possible

Research use only		
RIDA®UNITY Shiga Toxin 2 Typing RUO	*stx2a/c/d* *stx2f*	UN2245RUO
RIDA®UNITY Parasitic Stool Panel III RUO	*Cyclospora cayetanensis* *Blastocystis hominis* *Dientamoeba fragilis*	UN1755RUO

Your advantages

- > 98 % of GI pathogens covered by the RIDA®UNITY portfolio
- Reliable EHEC diagnostics with all relevant Shiga toxin subtypes (1a, 1c, 1d, 2a-g)
- Complete coverage of relevant *C. difficile* infection markers

Seasonal pathogen distribution
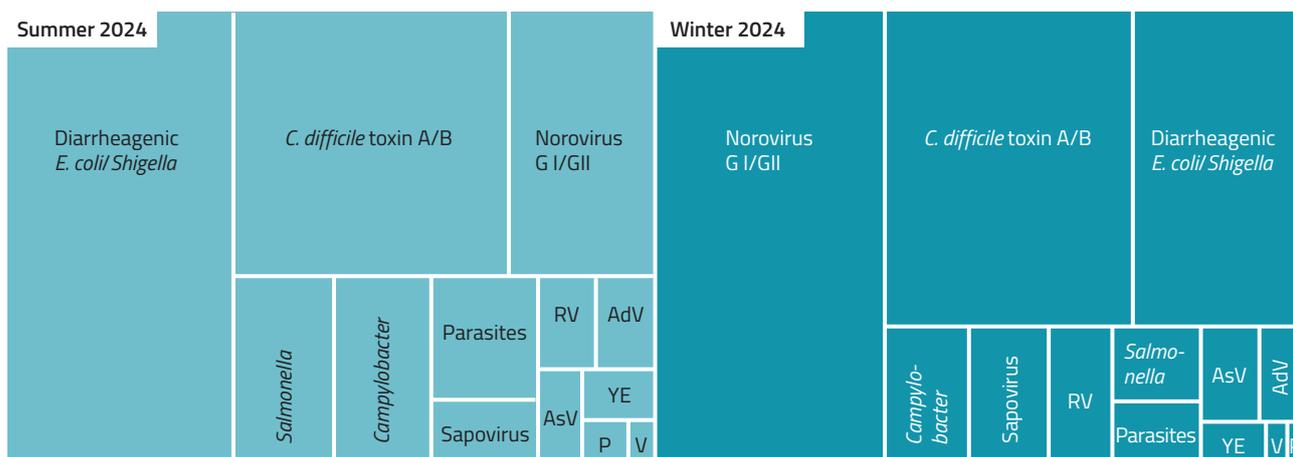
RV = Rotavirus, AdV = Adenovirus F40/41, AsV = Astrovirus, V = Vibrio, P = *Plesiomonas*, YE = *Yersinia enterocolitica; * Worldwide data*

RIDA®Xplore/ RIDA®Jump

The TandemPlex® panels are based on our patented multiplex tandem PCR (MT-PCR) technology. This is based on a two-step PCR, in which the gene fragments to be amplified are preamplified in a few copies before a further PCR with nested primers is performed. Processing is carried out on the RIDA®Xplore or RIDA®Jump devices for medium to high sample throughput.

Convincing due to

High-level multiplexing
- Syndromic detection of pathogen groups
- Up to 30 targets in one panel

Simplicity
- Low hands-on time
- Ready-to-use reagents
- Intuitive evaluation software

Safety
- Pathogen detection via real-time amplification curve and melting curve
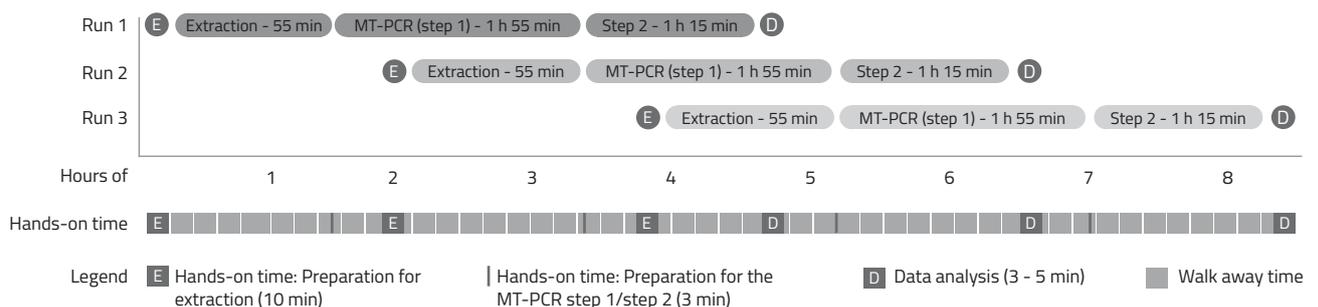- Low risk of contamination

Modular design
- Semi-automatic
- Can be combined with existing laboratory equipment
- Optimal utilization due to separately operable systems

Optimal capacity utilization – workflow

Run 1	E Extraction - 55 min	MT-PCR (step 1) - 1 h 55 min	Step 2 - 1 h 15 min D
Run 2	E Extraction - 55 min	MT-PCR (step 1) - 1 h 55 min	Step 2 - 1 h 15 min D
Run 3	E Extraction - 55 min	MT-PCR (step 1) - 1 h 55 min	Step 2 - 1 h 15 min D

Hours of	1	2	3	4	5	6	7	8

Hands-on time: E ... E ... E ... D ... D ... D

Legend
- E Hands-on time: Preparation for extraction (10 min)
- | Hands-on time: Preparation for the MT-PCR step 1/step 2 (3 min)
- D Data analysis (3 - 5 min)
- ▨ Walk away time

RIDA®PrepX Stool Kit (Art. No. 90240)
Rapid diagnosis of diarrhea samples

The RIDA®PrepX Stool Kit enables fast extraction to optimize the workflow of liquid stool samples. Without time-consuming DNA/RNA purification, samples can be processed directly and evaluated with high sensitivity using state-of-the-art PCR technology — for maximum efficiency and reliable results in everyday laboratory work.

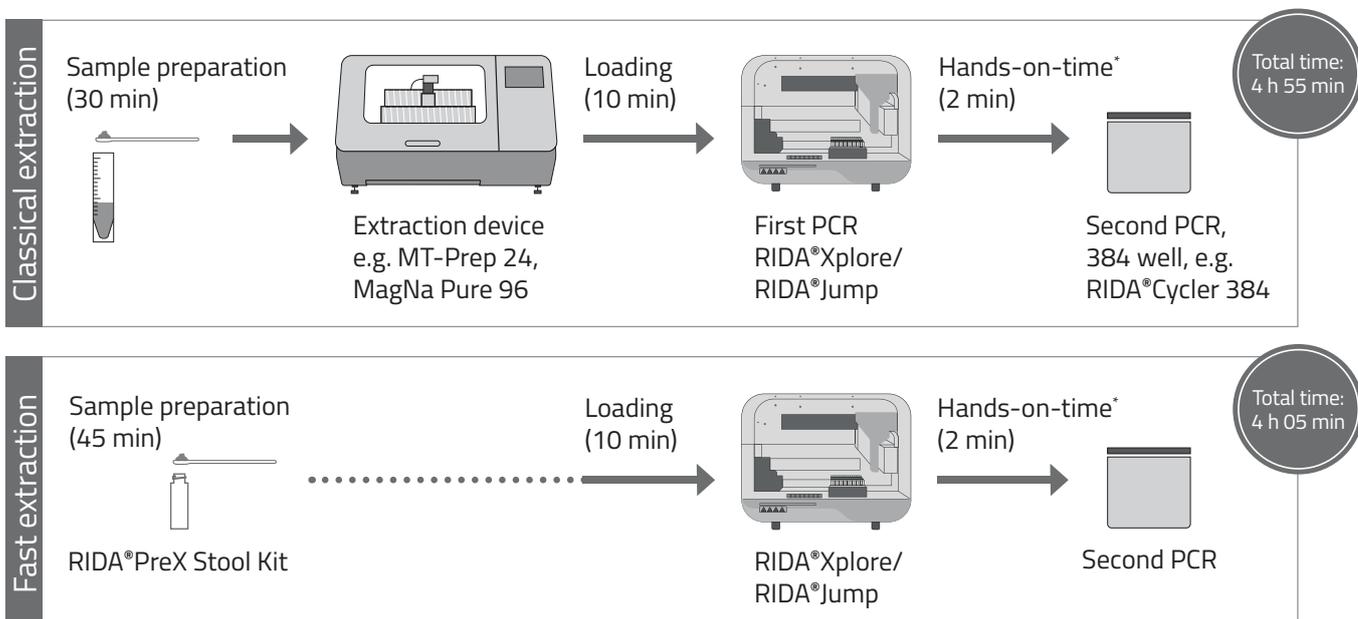| Validated with	Panels
• RIDA®Xplore • RIDA®Jump	• RIDA®Plex Faecal Pathoges M 16-well • RIDA®Plex Faecal Pathogens A 16-well • RIDA®Plex Faecal Bacteria and Parasites 12-well • RIDA®Plex Enteric Viruses 8-Well

Convincing due to

Speed
• 20-minute protocol
• Minimal manual effort

Reliability
• Suitable for bacteria, viruses, and parasites
• Efficient binding of PCR inhibitors

Cost savings

Flexible workflow combinations

Classical extraction

Sample preparation (30 min) → Extraction device e.g. MT-Prep 24, MagNa Pure 96 → Loading (10 min) → First PCR RIDA®Xplore/ RIDA®Jump → Hands-on-time* (2 min) → Second PCR, 384 well, e.g. RIDA®Cycler 384

Total time: 4 h 55 min

Fast extraction

Sample preparation (45 min) → RIDA®PreX Stool Kit → Loading (10 min) → RIDA®Xplore/ RIDA®Jump → Hands-on-time* (2 min) → Second PCR

Total time: 4 h 05 min

* Conversion of plate

RIDA®Xplore/RIDA®Jump Product portfolio

Syndromic testing approach

RIDA®Plex Faecal Pathogens M 16-well
Art. No. 25039

HP RX | RJ

Bacteria
Salmonella spp.
Shigella spp. and EIEC
Campylobacter jejuni
Campylobacter coli
Clostridioides difficile toxin A & B
Shiga toxin 1
Shiga toxin 2
Yersinia enterocolitica
Yersinia pseudotuberculosis
Aeromonas spp.

Parasites
Giardia lamblia
Cryptosporidium parvum
and *C. hominis*
Entamoeba histolytica

Viruses
Norovirus genotype I
Norovirus genotype II
Rotavirus A
Adenovirus types F and G
Astrovirus
Sapovirus

Your advantages
- Universal solution for detecting viruses, bacteria, and parasites
- Covers 98 % of the most important GI parameters
- Option for extraction-free processing

RIDA®Plex Faecal Pathogens A 16-well
Art. No. 25031

HP RX | RJ

Bacteria
Salmonella spp.
Shigella spp. and EIEC
Campylobacter jejuni
Campylobacter coli
Clostridioides difficile toxin A & B
Yersinia enterocolitica
Yersinia pseudotuberculosis
Aeromonas spp.

Parasites
Giardia lamblia
Cryptosporidium parvum
and *C. hominis*
Entamoeba histolytica
Blastocystis hominis
Dientamoeba fragilis

Viruses
Norovirus genotype I
Norovirus genotype II
Rotavirus A
Adenovirus types F and G

Your advantages
- Universal solution for virus, bacteria, and parasite detection with a focus on comprehensive parasite diagnostics
- Option for extraction-free processing

Specific detection of individual pathogen groups

RIDA®Plex Enteric Viruses 8-well
Art. No. 85037

HP RX | RJ

Norovirus genotype I
Norovirus genotype II
Rotavirus A
Adenovirus types F and G
Astrovirus
Sapovirus
Enterovirus

RIDA®Plex Parasites 8-well
Art. No. 85021

HP RX | RJ *

Giardia lamblia
Cryptosporidium parvum
and *C. hominis*
Entamoeba histolytica
Cyclospora cayetanensis (RUO)
Blastocystis hominis type 1
Blastocystis hominis type 3
Dientamoeba fragilis

RIDA®Plex Faecal Bacteria and Parasites 12-well
Art. No. 85041

HP RX | RJ *

Bacteria
Salmonella spp.
Shigella spp. and EIEC
Campylobacter jejuni
Campylobacter coli
Clostridioides difficile toxin A & B
Escherichia coli O157
Shiga toxin 1
Shiga toxin 2
Yersinia enterocolitica
Yersinia pseudotuberculosis

Parasites
Giardia lamblia
Cryptosporidium parvum
and *C. hominis*
Entamoeba histolytica

Your advantages
- Targeted pathogen group-specific processing
- Option for extraction-free processing (exceptions: item no. 85021)
- More efficient processing: Detection of bacteria and parasites in a single workflow to replace two methods in the laboratory: cultivation and EIA/microscopy

* Coming soon.
HP = Highplex, RX = RIDA®Xplore, RJ = RIDA®Jump

Vivalytic

Vivalytic enables simple and rapid PCR diagnostics with a cross-indication portfolio (gastrointestinal, respiratory, dermatological, CSF infections, STI, UTI, and HAI) both in the laboratory and at the Point of Care, where fast and reliable results are needed for therapeutic decisions, e.g., in hospitals, emergency rooms, or doctors' offices.

Convincing due to

Simplicity
- Fully automated processing
- Cartridge system
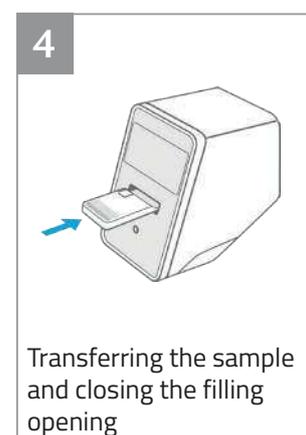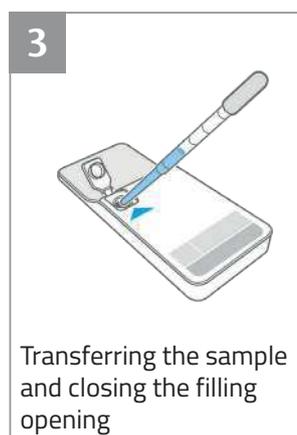- 4 steps to results

Speed
- Testing of individual samples
- Option for early finish

Product	Description	Art. No.
Viren, Bakterien		
Vivalytic Norovirus	Norovirus GI/GII	V1025
Vivalytic C. difficile	*C. difficile* Toxin A/B	V1019
Vivalytic Noro-, Rotavirus, C. diff.	Norovirus GI /GII Rotavirus Type A *C. difficile* Toxin A/B	V1026

Your advantages
- Focus on the 3 most common GI pathogens (~ 50 %)
- Time to result < 1 hour

Simple workflow

1	2	3	4
Scan the sample barcode	Scanning the cartridge	Transferring the sample and closing the filling opening	Transferring the sample and closing the filling opening

RIDA®GENE

The RIDA®GENE kits are based on real-time PCR technology and represent a flexible manual solution that can be combined with various existing laboratory devices. The broad portfolio enables direct qualitative detection of gastrointestinal, respiratory, sexually transmitted, and hospital-acquired infections.

Convincing due to

Flexibility
- Combination of viruses, bacteria, and parasites in a single run
- Compatibility with various extraction and detection systems

Requirement accuracy
- Single-source or multiplex approach possible
- Stable up to 20 thaw/freeze cycles
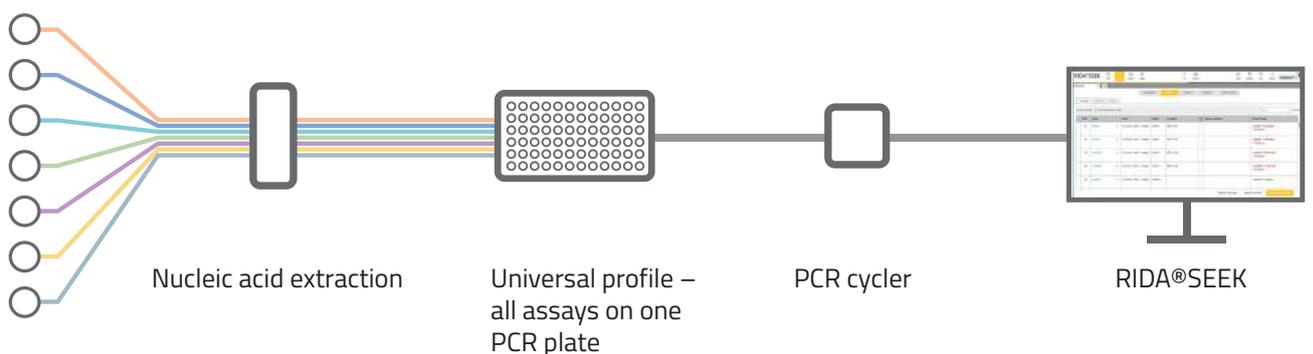- Low to medium sample throughput

User friendly
- Uniform test execution
- Ready-to-use reagents
- Internal control, positive control, negative control included
- Automatic evaluation with RIDA®SEEK

Benefit from the combined processing of RIDA®GENE DNA and RNA assays

Nucleic acid extraction

Universal profile – all assays on one PCR plate

PCR cycler

RIDA®SEEK

Product	Description	Art. No.
Viruses		
RIDA®GENE Viral Stool Panel I	Norovirus GI/GII Rotavirus Adenovirus Astrovirus	PG1315
RIDA®GENE Viral Stool Panel II	Rotavirus Adenovirus Astrovirus	PG1325
RIDA®GENE Viral Stool Panel III	Norovirus GI/GII Rotavirus Adenovirus	PG1335
RIDA®GENE Noroviurs	Norovirus GI/GII	PG1405
RIDA®GENE Noroviurs I & II	Norovirus GI Norovirus GII	PG1415
RIDA®GENE Sapovirus	Sapovirus	PG1605
RIDA®GENE Enterovirus	Enterovirus	PG4705
RIDA®GENE Hospital Stool Panel	Norovirus GI/GII Rotavirus *C. difficile* Toxin A/B	PG0705
Bacteria		
RIDA®GENE EHEC/EPEC	EHEC EPEC STEC EIEC/*Shigella* spp.	PG2205
RIDA®GENE EAEC	EAEC	PG2215
RIDA®GENE ETEC/EIEC	ETEC EIEC/*Shigella* spp.	PG2225
RIDA®GENE E. coli Stool Panel I	Shiga Toxin 1 Shiga Toxin 2 EPEC	PG2285
RIDA®GENE Bacterial Stool Panel	*Campylobacter* spp. *Salmonella* spp. *Yersinia enterocolitica*	PG2405
RIDA®GENE Bacterial Stool Panel I	*Campylobacter* spp. *Salmonella* spp. STEC EIEC/*Shigella* spp.	PG2415
RIDA®GENE Clostridium difficile	*C. difficile* *C. difficile* Toxin A/B	PG0835
Parasites		
RIDA®GENE Parasitic Stool Panel I	*Cryptosporidium* spp. *Entamoeba histolytica* *Giardia lamblia* *Dientamoeba fragilis*	PG1715
RIDA®GENE Parasitic Stool Panel II	*Cryptosporidium* spp. *Entamoeba histolytica* *Giardia lamblia*	PG1725
Research use only		
RIDA®GENE Parasitic Stool Panel IV RUO	*Giardia intestinalis* *Entamoeba histolytica* *Cryptosporidium* spp. *Cyclospora cayetanensis*	PG1765RUO
RIDA®GENE Bacterial Stool Panel III RUO	*Yersinia enterocolitica* *Aeromonas* spp. *Vibrio cholerae* *Plesiomonas shigelloides*	PG2435RUO
RIDA®GENE Bacterial Stool Panel V RUO	*Campylobacter* spp. *Salmonella* spp. *Yersinia enterocolitica* EIEC/*Shigella* spp.	PG2455RUO

Advantages for your *E. coli* diagnostics

- Comprehensive PCR portfolio of human pathogens *E. coli*
- Reliable EHEC diagnostics
- Differentiation between Shiga toxin 1 and 2
- Detection of all relevant Shiga toxin subtypes (1a, 1c, 1d, 2a - g)
- Validated for stool samples and culture

	stx1	stx2	eae	ipaH	aat/ aggR	LT	ST
PG2205	STEC	STEC					
		EHEC	EHEC				
			EPEC				
				EIEC/ *Shigella* spp.			
PG2215					EAEC		
PG2225				EIEC/ *Shigella* spp.		ETEC	ETEC
PG2285	STEC	STEC					
		EHEC	EHEC				
			EPEC				

Overview of pathogens

	RIDA®UNITY	RIDA®GENE	RIDA®Xplore/RIDA®Jump	Vivalytic
Viruses				
Adenovirus	●	●	●	
Astrovirus	●	●	●	
Enterovirus	*	●	●	
Norovirus	●	●	●	●
Rotavirus	●	●	●	●
Sapovirus	*	●	●	
Bacteria				
Aeromonas spp.			●	
Campylobacter spp.	●	●	●	
C. difficile	●	●	●	●
E. coli O175			●	
EHEC	●	●	RUO	
EPEC	●	●	RUO	
ETEC	*	●		
EIEC	●	●	●	
EAEC	*	●		
Helicobacter pylori	(RUO)	●		
Salmonella spp.	●	●	●	
Shigella spp.	●	●	●	
STEC	●	●	●	
Yersinia enterocolitica	●	●	●	
Yersinia pseudotuberculosis	*		●	
Parasites				
Blastocystis hominis	RUO	●	●	
Cryptosporidium spp.	●	●	●	
Dientamoeba fragilis	RUO	●	●	
Cyclospora cayetanensis	RUO		RUO	
Entamoeba histolytica	●	●	●	
Giardia lamblia	●	●	●	

* In development
(RUO) = Research Use Only, for manual processing only